

**REMARKS**

A review of the claims indicates that:

A) Claims 2—7, 10, 11, 13—15, 17, 18, 20—22, 24—28, 30—35 and 37—43 remain in their original form.

B) Claims 1, 8, 9, 16, 23, 29 and 36 are currently amended.

C) Claims 12 and 19 are currently cancelled.

In view of the following remarks, Applicant respectfully requests reconsideration of the rejected claims and withdrawal of the rejections.

**Issues with the Drawings**

The Applicant has submitted Replacement Sheets for all of the drawing figures. “Fig” has been changed to “FIG” in all instances. In FIG. 4, the laser lines have been changed to solid, and the line weight increase to result in solid black, as requested. In FIG. 5, the reference designators for the X and Y axes have been moved to touch the axes. In FIG. 1, the edges of the truck have been replaced with black lines to sharpen the appearance. The Applicant believes that all issues have therefore been addressed.

**Issues with the Specification**

The requested changes to four paragraphs in the specification, and the Applicant thanks the Examiner for the careful examination of the specification. These changes have been made.

**35 U.S.C. §102 Rejections**

Claims 1, 9 and 29 were rejected under §102(e) as being anticipated by U.S. Patent No. 5,666,441, hereinafter “Rao 441.” Claim 1 has been amended to recite the limitations of Claim 8, and the rejection of Claim 1/Claim 8 will be

1 addressed in this section. In response to the claim rejections, the Applicant  
2 submits that the Office has failed to establish a *prima facie* case of anticipation  
3 and, in view of the comments below, respectfully traverses the Office's rejections.

4  
5 **Claim 1** recites a system, comprising:

- 6 • a camera to obtain an image of a cargo space;
- 7 • an image evaluator to recognize lines within the image, and to  
8 evaluate the lines for indications of cargo; and
- 9 • a projection pattern image library comprising **a projection pattern  
10 image;**
- 11 • **wherein the image evaluator is configured to compare the image  
12 to the projection pattern image.**

13 Claim 1 recites, "a projection pattern image". The Rao 441 reference does  
14 not show or disclose "a projection pattern image." Instead, Rao 441 obtains an  
15 image, detects edges and attempts to recognize boxes as grouped lines (edges).  
16 However, Rao 441 does not disclose, "a projection pattern" or "evaluating lines  
17 within the projected pattern". Accordingly, the Applicant respectfully submits that  
18 Rao 441 is deficient to support the Section 102 rejection of Claim 1, and  
19 respectfully requests that the rejection of Claim 1 be removed.

20 Referring to Rao 441 at Fig. 4, Rao 441 discloses obtaining an image,  
21 looking for lines, and attempting to group lines to recognize a box in any  
22 orientation (column 2, lines 60—65).

23 However, Rao 441 does not disclose "a projection pattern." The Patent  
24 Office suggests that Rao 441 discloses a projection pattern at claim 8. The  
25 Applicant respectfully disagrees. Claim 8 of Rao 441 discusses "fork junctions"  
and related concepts that are not related to "a projection pattern." Accordingly,

1 the Applicant respectfully submits that Rao 441 does not support the Section 102  
2 rejection, and respectfully requests that it be removed.

3 Moreover, not only does the Rao 441 reference not disclose a projection  
4 pattern, but Rao 441 does not include a projection pattern library. The Table 1 in  
5 column 8 of Rao 441 discloses only possible and impossible angle relationships,  
6 and does not disclose projection patterns. Recall that the angles are observed lines  
7 from the image, and are not projected, that is, they are part of an image and not a  
8 projected image. Accordingly, Rao 441 does not disclose projection patterns or a  
9 library of such patterns. Accordingly, the Applicant respectfully submits that Rao  
10 441 fails to support the Section 102 rejection of Claim 1.

11 Claim 1 has been amended to recite, "wherein the image evaluator is  
12 configured to compare the image to the projection pattern image." The Rao 441  
13 reference does not disclose projection patterns or a comparison of an image from a  
14 camera to a projection pattern image.

15 The Patent Office suggests that Rao 441 discloses comparing detected lines  
16 to orthographic projections (office action mailed 02/20/2007, line 1 of page 9).  
17 The Applicant respectfully submits that this is not relevant, in part because Rao  
18 441 discloses "orthographic projections" (column 7, line 55) which are theoretical  
19 vector projections from the non-orthogonal vector. That is, Rao 441 does not  
20 disclose an actual projection (e.g. laser or similar) into a cargo area or similar.  
21 Accordingly, the Applicant respectfully submits that Rao 441 fails to support the  
22 Section 102 rejection of Claim 1, as amended to recite the limitations of Claim 8.

23 **Claims 2—8** depend from Claim 1 and are allowable due to their  
24 dependence from an allowable base claim. These claims are also allowable for  
25

1 their own recited features that, in combination with those recited in Claim 1, are  
2 neither disclosed nor suggested in references of record, either singly or in  
3 combination with one another.

4 **Claim 9** recites a processor-readable medium comprising processor-  
5 executable instructions for:

- 6 • sensing lines within an image of a cargo space;
- 7 • evaluating the lines; and
- 8 • basing an indication of presence of cargo on the evaluation;
- 9 • wherein the evaluating comprises instructions for:
  - 10 • **measuring distances between lines within a projection**
  - 11 **pattern;**
  - 12 • **determining if the measured distances indicate the presence**
  - 13 **of cargo.**

14 Claim 9 has been amended to recite the elements of original Claim 12.  
15 Both Claims 9 and 12 were rejected under Section 102 as being anticipated by Rao  
16 441. The Applicant will address the Section 102 rejection of combined Claims 9  
17 and 12.

18 Claim 9 as amended recites, “measuring distances between lines within a  
19 projection pattern.” The Patent Office suggests that this is anticipated by Rao  
20 441’s statement at column 9, lines 10—18. The Applicant respectfully disagrees.

21 Referring to column 9, lines 10—18, the Rao 441 reference discusses what  
22 happens if only one face of the box is pointed at the camera. Rao 441 measures  
23 the distance between some of the “triplets”. However, Rao 441 fails to disclose  
24 the use of a projected pattern. Rao 441 fails to disclose measuring distances  
25 between lines that are projected. Rao 441 discloses only measuring lines from the  
image (of the box) and not of a projected pattern. Thus, the Applicant submits that  
Rao 441 fails to disclose significant elements recited by the claim, and respectfully

1 submits that Rao 441 is deficient to support the Section 102 rejection.  
2 Accordingly, the Applicant respectfully requests that the Section 102 rejection be  
3 withdrawn.

4 **Claims 10—15** depend from Claim 9 and are allowable due to their  
5 dependence from an allowable base claim. These claims are also allowable for  
6 their own recited features that, in combination with those recited in Claim 9, are  
7 not disclosed by reference of record.

8 **Claim 29** recites a method of determining cargo presence, comprising:

- 9
- 10 • **defining a projection pattern within a cargo space;**
  - 11 • capturing an image of the projection pattern with a camera;
  - 12 • **evaluating lines within the projection pattern for evidence of cargo;** and
  - 13 • basing an indication of cargo presence on the evaluation.

14 Claim 29 recites, “defining a projection pattern within a cargo space,” and  
15 is therefore allowable for at least the reasons that Claim 1 is allowable.  
16 Accordingly, the Applicant incorporates by reference the arguments from Claim 1  
above.

17 Claim 29 also recites, “evaluating lines within the projection pattern for  
18 evidence of cargo”. In part because Rao 441 does not disclose “a projection  
19 pattern,” Rao 441 does not show or disclose “evaluating lines within the projection  
20 pattern for evidence of cargo.” Accordingly, the Applicant respectfully submits  
21 that Rao 441 is deficient to support the Section 102 rejection of Claim 29, and  
22 respectfully requests that the rejection of Claim 29 be removed.  
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1       The Patent Office suggests that column 7 line 46 to column 8 line 51  
2 discloses “evaluating lines within the projection pattern.” The Applicant  
3 respectfully disagrees.

4       Referring to the indicated portion of Rao 441, a method of evaluating forks  
5 (intersections of line segments) is disclosed that indicates that the lines are part/not  
6 part of a box (see column 7, lines 32—34).

7       The “fork junctions” of Rao 441 do not operate on a projected pattern, as  
8 recited by Claim 29. Instead, the “fork junctions” are obtained from a image, and  
9 not from a projected pattern. Rao 441 does not disclose the use of a projected  
10 image.

11       The “fork junctions” of Rao 441 do not distinguish between the corner of a  
12 cargo area and the corner of a box. All that Rao 441 discloses is a way of  
13 determining if the lines represented by the vectors are part of a group (see column  
14 7, lines 7—13, wherein Rao 441 tries to determine if one vector shouldn’t be  
15 grouped with another vector, i.e. the high level grouping).

16       Thus, by evaluating the forks, Rao 441 is not evaluating a projection  
17 pattern, and is not evaluating for the evidence of cargo. Accordingly, the  
18 Applicant respectfully submits that Rao 441 does not support the Section 102  
19 rejection, and respectfully requests that it be removed.

20       **Claims 30—35** depend from Claim 29 and are allowable due to their  
21 dependence from an allowable base claim. These claims are also allowable for  
22 their own recited features that, in combination with those recited in Claim 29, are  
23 neither disclosed nor suggested in references of record, either singly or in  
24 combination with one another.

### 35 U.S.C. §103 Rejections

Claims 16, 23 and 36 were rejected under §103(a) as being anticipated by U.S. Patent No. 5,666,441, hereinafter "Rao 441" in view of U.S. Patent No. 6,366,689, hereinafter "Rao 689." In response to the Section 103 rejection, the Applicant has amended the independent claims to recite elements from original Claim 11, and, in view of the comments below, respectfully traverses the Office's rejections.

**Claim 16** recites a processor-readable medium comprising processor-executable instructions for:

- forming a pattern within a cargo space using a laser and **lines formed by intersection of planes forming the cargo space**;
- obtaining an image of the pattern;
- analyzing the image, wherein the analyzing comprises measuring distances between lines within the pattern and comparing the measurements to expected measurements; and
- basing an indication of cargo presence on the analysis.

Claim 16 has been amended to substantially recite elements from original Claim 11, which indicates that the pattern is formed *by lines formed in part by the intersection of planes forming the cargo space*. The Applicant submits that, even combined, Rao 689 and Rao 441 do not teach or suggest the use of lines formed by intersection of planes forming the cargo space.

The Patent Office suggests that Rao 441 teaches the use of vectors to recognize planes that form lines, or similar. However, Rao 441 does not form a pattern using lines formed by the intersection of planes forming walls of the cargo space. Rao 441 does not then use such a pattern to recognize cargo.

1 Rao 441 teaches recognition of planes (box sides) and intersections (box  
2 edges) of boxes. However, Rao 441 does not use such lines as part of a pattern for  
3 analysis and a determination of whether cargo is present.

4 Therefore, Rao 689 and Rao 411, even taken together, fail to teach or  
5 suggest using the walls of the cargo area as a part of a pattern, wherein  
6 measurements of distances within the pattern indicate the presence of cargo.  
7 Accordingly, the Applicant respectfully requests that the Section 103 rejection of  
8 Claim 16, as amended to recite elements from original Claim 11, be removed.

9 **Claims 17—22** depend from Claim 16 and are allowable due to their  
10 dependence from an allowable base claim. These claims are also allowable for  
11 their own recited features that, in combination with those recited in Claim 16, are  
12 not disclosed by reference of record.

13 **Claims 23 and 36**, as amended to recite elements from original Claim 11,  
14 are allowable for at least the reasons that Claim 16 is allowable, and the remarks  
15 with respect to Claim 16 are incorporated herein. These claims are also allowable  
16 for their own recited features that are not disclosed by reference of record.

17 **Claims 24—28 and 37—43** depend from Claims 23 and 36 and are  
18 allowable due to their dependence from an allowable base claim. These claims are  
19 also allowable for their own recited features that, in combination with those  
20 recited in Claims 23 and 36, are not disclosed by reference of record.

### 21 **Claim cancellations**

22 In the interests of promoting prosecution of this application, the Applicant  
23 has cancelled two claims. This is not to be construed as a reflection of the  
24 Applicant's opinion on the allowability of any of the subject matter contained in  
25



1 these claims. Rather, the cancellations reflect the need to limit the Applicant's  
2 burden in further prosecuting this case.

3 **Conclusion**

4 The Applicant submits that all of the claims are in condition for allowance  
5 and respectfully requests that a Notice of Allowability be issued. If the Office's  
6 next anticipated action is not the issuance of a Notice of Allowability, the  
7 Applicant respectfully requests that the undersigned attorney be contacted for the  
8 purpose of scheduling an interview.

9 Respectfully Submitted,

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11 Dated: 8-20-07

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